REMARKS

The Office Action dated November 20, 2003 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Currently, claims 3-11 have been allowed. By this Amendment, claims 12 and 13 have been added. No new matter has been added or amendments made that narrow the scope of any elements of any claims. Accordingly, claims 1, 2, 12 and 13 are submitted for consideration.

Applicants acknowledge and thank the Examiner for indicating that claims 3-11 have been allowed.

Figs. 8A-8C were objected to for not being labeled as -- Prior Art --. Figs. 8A-8C have been labeled as such. The Applicants respectfully request that the objection be withdrawn.

Claim 2 was rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

Claim 2 corresponds, for example, to the combination of the range setting circuit 3, which is configured as shown in Fig. 5, and the clipper 4. In the range setting circuit 3 shown in Fig. 5, the subtractor circuits 31a, 31b, 31e and 31f correspond, for example, to the first subtractor and the subtractor circuits 31c and 31d correspond, for example, to the "second subtractor".

Based on the values of the second subtractor, i.e., the subtracting circuits 31c and 31d, it is determined whether to consider the data values of signals located <u>before</u> <u>or after</u> the target signal in order to find the minimum or maximum value. Then, by

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checking whether the values of the first subtractor, i.e., the subtractor circuits 31a, 31b, 31e and 31f, are smaller than the threshold value or not, it is determined which specific one among the data values of the signals currently considered to set as the minimum or maximum value.

Therefore, Applicants respectfully submit that the specification, as originally filed is enabling and request that the rejection be withdrawn.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by Klees (U.S. Patent No. 5,060,284). In making this rejection, the Office Action took the position that Klees discloses all the elements of the claimed invention. However, Applicants respectfully submit that claim 1 recites subject matter neither disclosed nor suggested by the prior art.

Claim 1 recites a clipping circuit including a clipper for clipping a target signal fed thereto within a range of data values set for the target signal. A subtractor is provided for subtracting, from a data value of the target signal to be clipped by the clipper, each of data values of adjacent signals located a predetermined interval away from the target signal before and after the target signal. A minimum value setter is provided for setting, as a minimum value of the range of data values for the target signal, the data value of one of the two adjacent signals that, when subtracted from the data value of the target signal, yields a difference greater than a first threshold value. A maximum value setter is provided for setting, as a maximum value of the range of data values for the target signal, the data value of one of the two adjacent signals that, when subtracted from the data value of the target signal, yields a difference smaller than a second threshold value.

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When the data value of the target signal fed to the clipper falls within the range of data values set for the target signal by the maximum value and minimum value setters, the target signal is output intact,. When the data value of the target signal fed to the clipper is smaller than the minimum value, the target signal is output after being clipped at the minimum value. When the data value of the target signal fed to the clipper is greater than the maximum value, the target signal is output after being clipped at the maximum value.

In making this rejection, the Office Action took the position that Klees discloses all of the elements of the claimed invention. However, it is respectfully submitted that the prior art fails to disclose or suggest the structure of the claimed invention, and therefore, fails to provide the advantages of the present invention. For example, clipping circuit of the present invention is configured to include a minimum value setter and a maximum value setter.

As a result of this claimed configuration, the clipping circuit of the present invention enhances the sharpness of the image without causing ringing in the reproduced image. Accordingly, the image signals have the transient characteristics improved as well as being edge-enhanced.

Klees discloses a method of processing video images using an error diffusion type algorithm to preserve edge detail. As shown in Figs. 1 and 2, arithmetic logic units (ALU 12 14, 16 or 22), the EXOR gate 62 and the MUX 64 constitute a clipper. However, of the two signals fed to the MUX 64, one is the pixel input signal corrected in the adder/subtractor 56 by using a signal obtained by multiplying the error signal by ½, and the other is either 0 $(=|00000000|_2)$ or 255 $(=|11111111|_2)$.

In Klees, the minimum and maximum values below and above which clipping occurs are fixed at 0 and 255, respectively. However, this is contrary to the present invention wherein clipping occurs below and above the minimum and maximum values set by the minimum and maximum value setters, respectively, as recited in claim 1.

Although Klees teaches a local minimum detector 42 (see Figs. 1 and 5) and the local maximum detector 45 (see Figs. 1 and 6), the local minimum detector 42 is a circuit that, when the pixel input signal is smaller than the set minimum value, adds a predetermined value to the pixel input signal to set the result as the minimum value (see Fig. 5). On the other hand, the local maximum detector 45 is a circuit that, when the pixel input signal is greater than the set maximum value, subtracts a predetermined value from the pixel input signal to set the result as the maximum value (see Fig. 6). Thus, these circuits fail to perform the setting of the minimum and maximum values by comparing the data value of a target signal with the data values of adjacent signals as recited in the present invention.

Still further, in Klees, the minimum and maximum values set by the local minimum and maximum detectors 42 and 45 are fed to the error subtractor 32 (see Figs. 1 and 7). The error subtractor 32 then produces, on the basis of the difference between one of the minimum and maximum values set by the local minimum and maximum detectors 42 and 45 and the pixel signal corrected for the error in the ALU 22, an error signal representing the error. Thus, according to Klees, the purpose of setting the minimum and maximum values is not to set the range outside which the clipper performs clipping as recited in the present invention.

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Therefore, it is respectfully submitted that the Applicants' invention, as set forth in claim 1, is not anticipated within the meaning of 35 U.S.C. § 102 and it is requested that the rejection be withdrawn.

Newly added claim 12 is dependent on claim 1 and further recites that in the minimum value setter, if the differences between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or greater than the first threshold value, the data value of the target signal is set as the minimum value, and in the maximum value setter, if the differences between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or smaller than the second threshold value, the data value of the target signal is set as the maximum value.

Newly added claim 13 is dependent upon claim 2 and further recites that in the minimum value setter, if the differences, as calculated by the second subtractor, between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or greater than the first threshold value, the data value of the target signal is set as the minimum value, and in the maximum value setter, if the differences, as calculated by the second subtractor, between the data value of the target signal and each of the data values of the adjacent signals located before and after the target signal have same signs or are both equal to or smaller than the second threshold value, the data value of the target signal is set as the maximum value.

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Therefore, is respectfully submitted that newly claims 12 and 13 are also patentable over the prior art.

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejections, allowance of claims 1, 2, 12 and 13 (claims 3-11 already being indicated as reciting allowable subject matter), and the prompt issuance of a Notice of Allowability are respectfully solicited.

If this application is not in condition for allowance, the Examiner is requested to contact the undersigned at the telephone listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 103213-00029.**

Respectfully submitted,
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Enclosures: Replacement Figures 8A-8C

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